

SEQUENCE LISTING

<110> THE UNIVERSITY OF TENNESSEE RESEARCH CORPORATION
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<120> EUKARYOTIC PEPTIDE UPTAKE SYSTEM FOR TRANSPORTING
ENKEPHALINS

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<140> 09/914541

<141> 2001-08-29

<150> PCT/US00/05158

<151> 2000-03-01

<150> 60/122,312

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<170> PatentIn Ver. 2.1

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	210					215					220				
Ser	Leu	Phe	Arg	Ala	Leu	His	Glu	Lys	Glu	Glu	Arg	Thr	Lys	Gly	Gly
225					230					235					240
Leu	Thr	Arg	Thr	Gln	Phe	Phe	Val	Ile	Ala	Phe	Val	Cys	Ser	Phe	Ala
				245					250					255	
Tyr	Tyr	Val	Phe	Pro	Gly	Tyr	Leu	Phe	Gln	Ile	Met	Thr	Ser	Leu	Ser
			260					265					270		
Trp	Val	Cys	Trp	Phe	Phe	Pro	Ser	Ser	Val	Met	Ala	Gln	Gln	Ile	Gly
		275					280					285			
Ser	Gly	Leu	His	Gly	Leu	Gly	Val	Gly	Ala	Ile	Gly	Leu	Asp	Trp	Ser
	290					295					300				
Thr	Ile	Ser	Ser	Tyr	Leu	Gly	Ser	Pro	Leu	Ala	Ser	Pro	Trp	Phe	Ala
305					310					315					320
Thr	Ala	Asn	Val	Gly	Val	Gly	Phe	Val	Leu	Val	Ile	Tyr	Val	Leu	Val
				325					330					335	
Pro	Ile	Cys	Tyr	Trp	Leu	Asp	Val	Tyr	Lys	Ala	Lys	Thr	Phe	Pro	Ile
			340					345					350		
Phe	Ser	Ser	Ser	Leu	Phe	Ser	Ser	Gln	Gly	Ser	Lys	Tyr	Asn	Ile	Thr
			355				360					365			
Ser	Ile	Ile	Asp	Ser	Asn	Phe	His	Leu	Asp	Leu	Pro	Ala	Tyr	Glu	Arg
	370					375					380				
Gln	Gly	Pro	Leu	Tyr	Leu	Cys	Thr	Phe	Phe	Ala	Ile	Ser	Tyr	Gly	Val
385					390					395					400
Gly	Phe	Ala	Ala	Leu	Ser	Ala	Thr	Ile	Met	His	Val	Ala	Leu	Phe	His
				405					410					415	
Gly	Arg	Glu	Ile	Trp	Glu	Gln	Ser	Lys	Glu	Ser	Phe	Lys	Glu	Lys	Lys
			420					425					430		
Leu	Asp	Val	His	Ala	Arg	Leu	Met	Gln	Arg	Tyr	Lys	Gln	Val	Pro	Glu
		435					440					445			

Trp	Trp	Phe	Trp	Cys	Ile	Leu	Val	Thr	Asn	Val	Gly	Ala	Thr	Ile	Phe	
450						455					460					
Ala	Cys	Glu	Tyr	Tyr	Asn	Asp	Gln	Leu	Gln	Leu	Pro	Trp	Trp	Gly	Val	
465					470					475					480	
Leu	Leu	Ala	Cys	Thr	Val	Ala	Ile	Ile	Phe	Thr	Leu	Pro	Ile	Gly	Ile	
				485					490					495		
Ile	Thr	Ala	Ile	Thr	Asn	Gln	Ala	Pro	Gly	Leu	Asn	Ile	Ile	Thr	Glu	
			500					505					510			
Tyr	Ile	Ile	Gly	Tyr	Ile	Tyr	Pro	Gly	Tyr	Pro	Val	Ala	Asn	Met	Cys	
		515					520					525				
Phe	Lys	Val	Tyr	Gly	Tyr	Ile	Ser	Met	Gln	Gln	Ala	Ile	Thr	Phe	Leu	
	530					535					540					
Gln	Asp	Phe	Lys	Leu	Gly	His	Tyr	Met	Lys	Ile	Pro	Pro	Arg	Thr	Met	
545					550					555					560	
Phe	Met	Ala	Gln	Ile	Val	Gly	Thr	Leu	Ile	Ser	Cys	Phe	Val	Tyr	Leu	
				565					570					575		
Thr	Thr	Ala	Trp	Trp	Leu	Met	Glu	Thr	Ile	Pro	Asn	Ile	Cys	Asp	Ser	
			580					585					590			
Val	Thr	Asn	Ser	Val	Trp	Thr	Cys	Pro	Ser	Asp	Lys	Val	Phe	Tyr	Asp	
		595					600					605				
Ala	Ser	Val	Ile	Trp	Gly	Leu	Ile	Gly	Pro	Arg	Arg	Ile	Phe	Gly	Asp	
	610					615					620					
Leu	Gly	Leu	Tyr	Lys	Ser	Val	Asn	Trp	Phe	Phe	Leu	Val	Gly	Ala	Ile	
625					630					635					640	
Ala	Pro	Ile	Leu	Val	Trp	Leu	Ala	Ser	Arg	Met	Phe	Pro	Arg	Gln	Glu	
				645					650					655		
Trp	Ile	Lys	Leu	Ile	Asn	Met	Pro	Val	Leu	Ile	Ser	Ala	Thr	Ser	Ser	
			660					665					670			
Met	Pro	Pro	Ala	Thr	Ala	Val	Asn	Tyr	Thr	Thr	Trp	Val	Leu	Ala	Gly	
		675					680					685				
Phe	Leu	Ser	Gly	Phe	Val	Val	Phe	Arg	Tyr	Arg	Pro	Asn	Leu	Trp	Gln	
	690					695					700					
Arg	Tyr	Asn	Tyr	Val	Leu	Ser	Gly	Ala	Leu	Asp	Ala	Gly	Leu	Ala	Phe	
705					710					715					720	
Met	Gly	Val	Leu	Leu	Tyr	Met	Cys	Leu	Gly	Leu	Glu	Asn	Val	Ser	Leu	
				725					730					735		
Asp	Trp	Trp	Gly	Asn	Glu	Leu	Asp	Gly	Cys	Pro	Leu	Ala	Ser	Cys	Pro	
			740					745					750			
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<213> Arabidopsis thaliana

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Asp Arg Cys Val Val Pro Glu Val Glu Leu Thr Val Pro Lys Thr Asp
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Asp Ser Thr Leu Pro Val Leu Thr Phe Arg Met Trp Val Leu Gly Ile
35 40 45
Gly Ala Cys Ile Val Leu Ser Phe Ile Asn Gln Phe Phe Trp Tyr Arg
50 55 60
Thr Met Pro Leu Ser Ile Thr Gly Ile Ser Ala Gln Ile Ala Val Val
65 70 75 80
Pro Leu Gly His Leu Met Ala Arg Val Leu Pro Thr Lys Arg Phe Leu
85 90 95
Glu Gly Thr Arg Phe Gln Phe Thr Leu Asn Pro Gly Ala Phe Asn Val
100 105 110
Lys Glu His Val Leu Ile Thr Ile Phe Ala Asn Ser Gly Ala Gly Ser
115 120 125
Val Tyr Ala Thr His Ile Leu Ser Ala Ile Lys Leu Tyr Tyr Lys Arg
130 135 140
Ser Leu Pro Phe Leu Pro Ala Phe Leu Val Met Ile Thr Thr Gln Ile
145 150 155 160
Leu Gly Phe Gly Trp Ala Gly Leu Phe Arg Lys His Leu Val Glu Pro
165 170 175
Gly Glu Met Trp Trp Pro Ser Asn Leu Val Gln Val Ser Leu Phe Gly
180 185 190
Ala Leu His Glu Lys Glu Lys Lys Ser Arg Gly Gly Met Ser Arg Thr
195 200 205
Gln Phe Phe Leu Ile Val Leu Val Ala Ser Phe Ala Tyr Tyr Ile Phe
210 215 220
Pro Gly Tyr Leu Phe Thr Met Leu Thr Ser Ile Ser Trp Val Cys Trp
225 230 235 240
Leu Asn Pro Lys Ser Ile Leu Val Asn Gln Leu Gly Ser Gly Glu His
245 250 255
Gly Leu Gly Ile Gly Ser Ile Gly Phe Asp Trp Val Thr Ile Ser Ala
260 265 270
Tyr Leu Gly Ser Pro Leu Ala Ser Pro Leu Phe Ala Ser Val Asn Val
275 280 285

Ala Ile Gly Phe Val Leu Val Met Tyr Ile Val Thr Pro Val Cys Tyr
 290 295 300
 Trp Leu Asn Ile Tyr Asp Ala Lys Thr Phe Pro Ile Phe Ser Ser Gln
 305 310 315 320
 Leu Phe Met Gly Asn Gly Ser Arg Tyr Asp Val Leu Ser Ile Ile Asp
 325 330 335
 Ser Lys Phe His Leu Asp Arg Val Val Tyr Ser Arg Thr Gly Ser Ile
 340 345 350
 Asn Met Ser Thr Phe Phe Ala Val Thr Tyr Gly Leu Gly Phe Ala Thr
 355 360 365
 Leu Ser Ala Thr Ile Val His Val Leu Val Phe Asn Gly Ser Asp Leu
 370 375 380
 Trp Lys Gln Thr Arg Gly Ala Phe Gln Lys Asn Lys Lys Met Asp Ile
 385 390 395 400
 His Thr Arg Ile Met Lys Lys Asn Tyr Arg Glu Val Pro Leu Trp Trp
 405 410 415
 Phe Leu Val Ile Leu Leu Leu Asn Ile Ala Leu Ile Met Phe Ile Ser
 420 425 430
 Val His Tyr Asn Ala Thr Val Gln Leu Pro Trp Trp Gly Val Leu Leu
 435 440 445
 Ala Cys Ala Ile Ala Ile Ser Phe Thr Pro Leu Ile Gly Val Ile Ala
 450 455 460
 Ala Thr Thr Asn Gln Ala Pro Gly Leu Asn Ile Ile Thr Glu Tyr Val
 465 470 475 480
 Ile Gly Tyr Ile Tyr Pro Glu Arg Pro Val Ala Asn Met Cys Phe Lys
 485 490 495
 Val Tyr Gly Tyr Ile Ser Met Thr Gln Ala Leu Thr Phe Ile Ser Asp
 500 505 510
 Phe Lys Leu Gly His Tyr Met Lys Ile Pro Pro Arg Ser Met Phe Met
 515 520 525
 Ala Gln Val Ala Gly Thr Leu Val Ala Val Val Val Tyr Thr Gly Thr
 530 535 540
 Ala Trp Trp Leu Met Glu Glu Ile Pro His Leu Cys Asp Thr Ser Leu
 545 550 555 560
 Leu Pro Ser Asp Ser Gln Trp Thr Cys Pro Met Asp Arg Val Phe Phe
 565 570 575
 Asp Ala Ser Val Ile Trp Gly Leu Val Gly Pro Arg Arg Val Phe Gly
 580 585 590
 Asp Leu Gly Glu Tyr Ser Asn Val Asn Trp Phe Phe Leu Val Gly Ala
 595 600 605
 Ile Ala Pro Leu Leu Val Trp Leu Ala Thr Lys Met Phe Pro Ala Gln

610					615					620					
Thr	Trp	Ile	Ala	Lys	Ile	His	Ile	Pro	Val	Leu	Val	Gly	Ala	Thr	Ala
625					630					635					640
Met	Met	Pro	Pro	Ala	Thr	Ala	Val	Asn	Phe	Thr	Ser	Trp	Leu	Ile	Val
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Ala	Phe	Ile	Phe	Gly	His	Phe	Ile	Phe	Lys	Tyr	Arg	Arg	Val	Trp	Trp
			660					665					670		
Thr	Lys	Tyr	Asn	Tyr	Val	Leu	Ser	Gly	Gly	Leu	Asp	Ala	Gly	Ser	Ala
		675					680					685			
Phe	Met	Thr	Ile	Leu	Leu	Phe	Leu	Ala	Leu	Gly	Arg	Lys	Gly	Ile	Glu
	690					695					700				
Val	Gln	Trp	Trp	Gly	Asn	Ser	Gly	Asp	Arg	Asp	Thr	Cys	Pro	Leu	Ala
705						710					715				720
Ser	Cys	Pro	Thr	Ala	Lys	Gly	Val	Val	Val	Lys	Gly	Cys	Pro	Val	Phe
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		20						25					30		
Asp	Asp	Pro	Ser	Leu	Pro	Val	Trp	Thr	Phe	Arg	Met	Trp	Phe	Leu	Gly
		35					40					45			
Leu	Leu	Ser	Cys	Ile	Leu	Leu	Ser	Phe	Leu	Asn	Thr	Phe	Phe	Gly	Tyr
	50					55					60				
Arg	Thr	Gln	Pro	Leu	Met	Ile	Thr	Met	Ile	Ser	Val	Gln	Val	Val	Thr
65					70					75					80
Leu	Pro	Leu	Gly	Lys	Leu	Met	Ala	Arg	Val	Leu	Pro	Glu	Thr	Lys	Tyr
				85					90					95	
Lys	Ile	Gly	Ser	Trp	Glu	Phe	Ser	Phe	Asn	Pro	Gly	Pro	Phe	Asn	Val
			100					105					110		
Lys	Glu	His	Val	Leu	Ile	Ser	Met	Phe	Ala	Asn	Ala	Gly	Ala	Gly	Phe
		115					120					125			
Gly	Ser	Gly	Thr	Ala	Tyr	Ala	Val	Gly	Ile	Val	Asp	Ile	Ile	Met	Ala
	130					135					140				
Phe	Tyr	Lys	Arg	Lys	Ile	Ser	Phe	Leu	Ala	Ser	Trp	Ile	Leu	Val	Ile
145					150					155					160
Thr	Thr	Gln	Asp	Asn	Ala	Arg	Met	Ser	Arg	Gly	Lys	Phe	Phe	Val	Ile

165										170					175				
Ala	Phe	Val	Cys	Ser	Phe	Ala	Trp	Tyr	Ile	Phe	Pro	Ala	Tyr	Leu	Phe				
			180					185					190						
Leu	Thr	Leu	Ser	Ser	Ile	Ser	Trp	Val	Cys	Trp	Ala	Phe	Pro	Lys	Ser				
		195					200					205							
Ile	Thr	Ala	Gln	Gln	Leu	Gly	Ser	Gly	Met	Ser	Gly	Leu	Gly	Ile	Gly				
	210					215					220								
Ala	Phe	Ala	Leu	Asp	Trp	Ser	Val	Ile	Ala	Ser	Tyr	Leu	Gly	Ser	Pro				
225					230					235					240				
Leu	Val	Thr	Pro	Phe	Phe	Ala	Ile	Val	Asn	Val	Leu	Val	Gly	Tyr	Val				
				245					250					255					
Leu	Val	Met	Tyr	Met	Val	Ile	Pro	Ile	Ser	Tyr	Trp	Gly	Met	Asn	Val				
			260					265					270						
Tyr	Glu	Ala	Asn	Lys	Phe	Pro	Ile	Phe	Ser	Ser	Asp	Leu	Phe	Asp	Lys				
		275					280					285							
Gln	Gly	Gln	Leu	Tyr	Asn	Ile	Ser	Thr	Ile	Val	Asn	Asn	Lys	Phe	Glu				
	290					295					300								
Leu	Asp	Met	Glu	Asn	Tyr	Gln	Gln	Gln	Gly	Arg	Val	Tyr	Leu	Ser	Thr				
305					310					315					320				
Phe	Phe	Ala	Ile	Ser	Tyr	Gly	Ile	Gly	Phe	Ala	Ala	Ile	Val	Ser	Thr				
				325					330					335					
Leu	Thr	His	Val	Ala	Leu	Phe	Asn	Gly	Lys	Gly	Ile	Trp	Gln	Gln	Val				
			340					345					350						
Arg	Ala	Ser	Thr	Lys	Ala	Lys	Met	Asp	Ile	His	Thr	Arg	Leu	Met	Lys				
		355					360					365							
Lys	Tyr	Lys	Asp	Ile	Pro	Gly	Trp	Trp	Phe	Tyr	Ser	Leu	Leu	Ala	Ile				
	370					375					380								
Ser	Leu	Val	Leu	Ser	Leu	Val	Leu	Cys	Ile	Phe	Met	Lys	Asp	Glu	Ile				
385					390					395					400				
Gln	Met	Pro	Trp	Trp	Gly	Leu	Leu	Leu	Ala	Ser	Phe	Met	Ala	Leu	Thr				
				405					410					415					
Phe	Thr	Val	Pro	Val	Ser	Ile	Ile	Thr	Ala	Thr	Thr	Asn	Gln	Thr	Pro				
			420					425					430						
Gly	Leu	Asn	Ile	Ile	Thr	Glu	Tyr	Leu	Met	Gly	Val	Leu	Leu	Pro	Gly				
		435					440					445							
Arg	Pro	Ile	Ala	Asn	Val	Cys	Phe	Lys	Thr	Tyr	Gly	Tyr	Ile	Ser	Met				
						455					460								
Ser	Gln	Ala	Ile	Ser	Phe	Leu	Asn	Asp	Phe	Lys	Leu	Gly	His	Tyr	Met				
465					470					475					480				
Lys	Ile	Pro	Pro	Arg	Ser	Met	Phe	Leu	Val	Gln	Phe	Ile	Gly	Thr	Val				
				485					490					495					

Ile Ala Gly Thr Val Asn Ile Ser Val Ala Trp Tyr Leu Leu Thr Ser
 500 505 510
 Val Glu Asn Ile Cys Gln Lys Glu Leu Leu Pro Pro Asn Ser Pro Trp
 515 520 525
 Thr Cys Pro Ser Asp Arg Val Phe Phe Asp Ala Ser Val Ile Trp Gly
 530 535 540
 Leu Val Gly Pro Lys Arg Ile Phe Gly Arg Leu Gly Asn Tyr Pro Ala
 545 550 555 560
 Leu Asn Trp Phe Phe Leu Gly Gly Leu Ile Gly Pro Val Leu Val Trp
 565 570 575
 Leu Leu Gln Lys Ala Phe Pro Thr Lys Thr Trp Ile Ser Gln Ile Asn
 580 585 590
 Leu Pro Val Leu Leu Gly Ala Thr Ala Ala Met Pro Pro Ala Thr Ser
 595 600 605
 Val Asn Phe Asn Cys Trp Ile Ile Val Gly Val Ile Phe Asn Tyr Phe
 610 615 620
 Val Phe Lys Tyr Cys Lys Lys Trp Trp Gln Arg Tyr Asn Tyr Val Leu
 625 630 635 640
 Ser Ala Ala Leu Asp Ala Gly Leu Ala Phe Met Gly Val Leu Leu Tyr
 645 650 655
 Phe Ser Leu Thr Met Asn Gly Ile Ser Ile Asn His Trp Trp Gly Ala
 660 665 670
 Lys Gly Glu Asn Cys Pro Leu Ala Ser Cys Pro Thr Ala Pro Gly Val
 675 680 685
 Leu Val Asp Asp Phe Thr Val Phe Phe Phe Phe Leu Lys Ile Phe Val
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 Pro Phe Val Asn Lys Asn Arg Leu Asn Asp Phe Leu Ser Met Tyr Leu
 705 710 715 720
 Leu Tyr

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 <213> Candida albicans

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 Asp Thr Asp Asn Asp His Asn Thr Asp Phe Glu Ala Asp Arg Lys Met
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 Pro Asp Leu Asp Ile Val Val Ser Lys Ser Gln Glu Phe Asp Pro Val
 35 40 45

Thr	Ser	His	Leu	Val	Asn	Asp	Ile	Met	Glu	Asp	Glu	Tyr	Ala	Ala	Val	
	50					55					60					
His	Val	Glu	Asp	Asp	Ser	Pro	Tyr	Pro	Glu	Val	Arg	Ala	Ala	Val	Pro	
65					70					75					80	
Ser	Thr	Asp	Asp	Pro	Thr	Leu	Pro	Gln	Asn	Thr	Ile	Arg	Ala	Trp	Val	
				85					90					95		
Ile	Gly	Leu	Ile	Leu	Thr	Thr	Val	Gly	Cys	Gly	Met	Asn	Met	Leu	Phe	
			100					105					110			
Ser	Phe	His	Ser	Pro	Ser	Phe	Ala	Ile	Thr	Thr	Phe	Val	Thr	Ser	Ile	
		115					120					125				
Leu	Ala	Trp	Pro	Ile	Gly	Asn	Phe	Trp	Ala	Trp	Ile	Val	Pro	Asp	Trp	
	130					135					140					
Lys	Ile	Phe	Gly	Ala	Ser	Leu	Asn	Pro	Gly	Pro	Phe	Asn	Val	Lys	Glu	
145					150					155					160	
His	Thr	Ile	Ile	Thr	Ile	Met	Ala	Asn	Val	Ser	Phe	Gly	Thr	Gly	Ala	
				165					170					175		
Ala	Thr	Ala	Thr	Asp	Ile	Leu	Leu	Ala	Gln	Asn	Met	Phe	Tyr	Lys	Ser	
			180					185					190			
Asn	Phe	Gly	Trp	Gly	Tyr	Asn	Leu	Leu	Leu	Ile	Trp	Ser	Thr	Gln	Cys	
		195					200					205				
Ile	Gly	Phe	Ala	Phe	Gly	Gly	Val	Met	Arg	Arg	Phe	Val	Val	Asp	Ser	
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Pro	Gly	Ala	Ile	Trp	Pro	Ser	Asn	Leu	Val	Thr	Ala	Thr	Phe	Leu	Thr	
225					230					235					240	
Asn	Met	His	Ile	Asn	Glu	Asn	His	Thr	Ala	Asn	Gly	Trp	Lys	Ile	Ser	
				245					250					255		
Arg	Leu	Ala	Phe	Phe	Val	Ile	Val	Phe	Val	Ala	Ser	Phe	Val	Trp	Tyr	
			260					265					270			
Trp	Phe	Pro	Gly	Tyr	Ile	Phe	Gln	Ala	Leu	Ser	Tyr	Phe	Ser	Trp	Ile	
		275					280					285				
Thr	Trp	Ile	Lys	Pro	Asn	Asn	Val	Ile	Ile	Asn	Gln	Val	Phe	Gly	Ser	
	290					295					300					
Ser	Ser	Gly	Leu	Gly	Met	Ile	Pro	Asn	Asn	Ile	Ala	Leu	Asp	Trp	Asn	
305					310					315					320	
Gln	Ile	Ala	Gly	Tyr	Ile	Gly	Ser	Pro	Leu	Ile	Pro	Pro	Ala	Ser	Val	
				325					330					335		
Ile	Ala	Thr	Ile	Phe	Gly	Ser	Ile	Val	Leu	Ile	Phe	Trp	Ile	Val	Val	
			340					345					350			
Pro	Ala	Ile	His	Tyr	Ser	Asn	Thr	Trp	Tyr	Ser	Gln	Tyr	Leu	Pro	Ile	
		355					360					365				

Ser	Ser	Thr	Gly	Ser	Phe	Asp	Arg	Phe	Gln	Gln	Thr	Tyr	Asn	Val	Ser	370	375	380
Lys	Ile	Ile	Asp	His	Lys	Thr	Leu	Ser	Phe	Asn	Glu	Ala	Glu	Tyr	Lys	385	390	395
Lys	Tyr	Ser	Pro	Leu	Phe	Leu	Ser	Thr	Thr	Phe	Ala	Ile	Ser	Tyr	Gly	405	410	415
Leu	Ser	Phe	Ala	Ser	Ile	Leu	Ala	Thr	Ile	Thr	His	Thr	Ile	Cys	Phe	420	425	430
His	Gly	Arg	Asp	Leu	Ile	Ala	Ser	Leu	Lys	Ala	Lys	Glu	Lys	Pro	Asp	435	440	445
Val	His	Asn	Arg	Leu	Met	Lys	Ala	Tyr	Lys	Pro	Val	Pro	Glu	Trp	Trp	450	455	460
Tyr	Leu	Val	Val	Phe	Leu	Val	Phe	Phe	Gly	Met	Ser	Ile	Ala	Thr	Val	465	470	475
Arg	Ala	Trp	Pro	Thr	Glu	Met	Pro	Val	Trp	Gly	Leu	Val	Phe	Ala	Leu	485	490	495
Ile	Ile	Ala	Ile	Ile	Phe	Leu	Leu	Pro	Val	Ala	Ile	Ile	Tyr	Ala	Lys	500	505	510
Thr	Asn	Ile	Ala	Val	Gly	Leu	Asn	Val	Val	Thr	Glu	Phe	Ile	Val	Gly	515	520	525
Tyr	Val	Leu	Gly	Gly	Arg	Pro	Leu	Cys	Met	Met	Leu	Phe	Lys	Thr	Phe	530	535	540
Gly	Tyr	Ile	Thr	Asn	Asn	Gln	Ala	Val	Thr	Phe	Val	Gln	Asp	Met	Lys	545	550	555
Leu	Gly	His	Tyr	Met	Lys	Ile	Asp	Pro	Arg	Thr	Leu	Phe	Trp	Ala	Gln	565	570	575
Phe	Ala	Ala	Thr	Ile	Trp	Gly	Ser	Leu	Val	Gln	Ile	Ala	Val	Leu	Glu	580	585	590
Trp	Ala	Tyr	Gly	Ala	Ile	Asp	Asn	Leu	Cys	Ala	Ala	Asp	Gln	Lys	Asn	595	600	605
His	Tyr	Thr	Cys	Pro	Asn	Gly	Lys	Val	Phe	Phe	Asn	Ala	Ser	Ile	Ile	610	615	620
Trp	Gly	Val	Ile	Gly	Pro	Gln	Arg	Gln	Phe	Ser	His	Gly	Gln	Ile	Tyr	625	630	635
Tyr	Gly	Leu	Leu	Phe	Phe	Phe	Ile	Ile	Gly	Ala	Val	Thr	Pro	Val	Ile	645	650	655
Asn	Trp	Leu	Ile	Leu	Lys	Lys	Trp	Pro	Asn	Ser	Pro	Val	Lys	Tyr	Leu	660	665	670
His	Trp	Pro	Val	Phe	Phe	Ser	Gly	Thr	Gly	Tyr	Ile	Pro	Pro	Ala	Thr	675	680	685
Pro	Tyr	Asn	Tyr	Thr	Ser	Tyr	Cys	Ala	Val	Gly	Leu	Phe	Phe	Gly	Trp			

690

695

700

Trp Ile Lys Lys Lys Trp Phe His Trp Trp Ser Lys Tyr Asn Tyr Ser
705 710 715 720

Leu Ser Ala Gly Leu Asp Ile Gly Leu Ala Trp Cys Ser Leu Ile Ile
725 730 735

Phe Leu Cys Leu Ser Leu Thr Asn Thr Asp Phe Pro Ser Trp Trp Gly
740 745 750

Asn Asp Val Ile Asn Thr Thr Leu Asp Thr Gln Val Val Thr Asn Ile
755 760 765

Arg His Ile Leu Lys Glu Gly Glu Ala Phe Gly Pro Ser Ser Trp
770 775 780

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<211> 877

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 9

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Thr Lys Gly Thr Val Asp Tyr Ala Glu Gly Ala Glu Tyr Ser Glu Arg
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Leu Ser Asn His Ser Ser Asp Phe Ser Gln Trp Tyr Thr Asp Glu Gln
35 40 45

Ile Leu His Phe Met Lys Lys Leu Gly Tyr Glu Asn Arg Thr Leu Tyr
50 55 60

Asp Ile Pro Glu Asp Val Ala Tyr Ile Leu Lys Lys Met Pro Glu Leu
65 70 75 80

Thr Leu Glu Asp Ser Phe Lys Ile Leu Lys Asp Ser Ile Ile Tyr Phe
85 90 95

Lys Asp Asp Glu Asn Ile Pro His Asp Gln Tyr Glu Glu Trp Lys Arg
100 105 110

Leu Val Asp Leu Glu Asp Leu Asp Ser Lys Glu Gly Ile Asp Glu Tyr
115 120 125

Asp Ser Phe Asp Ile Arg Ala Phe Ala Ser Ala Ile Lys Phe His Ser
130 135 140

Pro Tyr Gln Glu Val Arg Ala Val Val Asp Pro Glu Asp Asp Pro Thr
145 150 155 160

Ile Pro Val Glu Thr Phe Arg Ala Tyr Phe Leu Ala Ile Ile Trp Ser
165 170 175

Val Ile Gly Ser Gly Phe Asn Glu Phe Phe Ser His Arg Val Val Ser
180 185 190

Ile Ser Leu Asn Thr Pro Ile Ile Gln Met Phe Leu Tyr Ile Cys Gly

195					200					205					
Lys	Ala	Trp	Ala	Lys	Thr	Ile	Pro	Cys	Trp	Thr	Ile	Thr	Ile	Arg	Gly
210						215					220				
Arg	Lys	Tyr	Gly	Ile	Asn	Ile	Asp	Lys	Pro	Trp	Thr	Gln	Lys	Glu	Gln
225					230					235					240
Met	Phe	Ser	Thr	Leu	Leu	Tyr	Ala	Ile	Cys	Gln	Gly	Ala	Phe	Tyr	Thr
				245					250					255	
His	Tyr	Asn	Ile	Leu	Thr	Gln	Lys	Leu	Phe	Tyr	His	Ser	Ala	Phe	Ser
			260					265					270		
Phe	Gly	Tyr	Gln	Phe	Leu	Leu	Ser	Leu	Ser	Val	Gln	Phe	Ile	Gly	Phe
		275					280					285			
Gly	Phe	Ala	Gly	Ile	Leu	Arg	Lys	Phe	Val	Val	Tyr	Pro	Ala	Arg	Ala
	290					295					300				
Leu	Trp	Pro	Thr	Val	Met	Pro	Thr	Ile	Ala	Ile	Asn	Lys	Ala	Leu	Leu
305					310					315					320
Gly	Lys	Glu	Lys	His	Glu	Ser	Gly	Met	Ser	Arg	Tyr	Lys	Phe	Phe	Phe
				325					330					335	
Leu	Thr	Phe	Phe	Ile	Met	Phe	Ile	Tyr	Asn	Trp	Phe	Pro	Thr	Tyr	Ile
			340					345					350		
Ile	Asn	Ile	Leu	Asn	Thr	Phe	Asn	Trp	Met	Thr	Trp	Ile	Lys	Pro	Ser
	355						360					365			
Asn	Ile	Asn	Leu	Ala	Asn	Ile	Thr	Gly	Gly	Val	Thr	Gly	Leu	Gly	Ile
	370					375					380				
Asn	Pro	Ile	Ser	Ser	Phe	Asp	Trp	Asn	Val	Ile	Ser	Phe	Asn	Ser	Pro
385					390					395					400
Leu	Val	Tyr	Pro	Phe	Trp	Ser	Tyr	Leu	Thr	Gln	Tyr	Leu	Gly	Cys	Ile
				405					410					415	
Leu	Ala	Ala	Leu	Ile	Val	Ile	Ala	Val	Tyr	Tyr	Ser	Asn	Tyr	Met	Ser
			420					425					430		
Cys	Gln	Tyr	Leu	Pro	Ile	Phe	Thr	Asn	Ser	Leu	Tyr	Thr	Asn	Thr	Gly
		435					440					445			
His	Ser	Phe	Lys	Val	Thr	Glu	Val	Leu	Asp	Ser	Asp	Asn	Lys	Leu	Asp
	450					455					460				
Val	Lys	Lys	Tyr	Gln	Ser	Tyr	Ser	Pro	Pro	Tyr	Tyr	Ser	Ala	Gly	Asn
465					470					475					480
Leu	Val	Ser	Tyr	Gly	Ala	Phe	Ile	Cys	Ala	Tyr	Pro	Leu	Met	Ile	Thr
				485					490					495	
Trp	Ser	Phe	Ile	Val	His	Ser	Lys	Leu	Leu	Phe	Asn	Ala	Phe	Lys	Asp
			500					505					510		
Trp	Ala	Leu	Asn	Leu	Trp	Ala	Met	Arg	Lys	Leu	Lys	Ser	Trp	Val	Thr
		515					520					525			

Met	Phe	Lys	Ser	Asp	Tyr	Arg	Ala	Leu	Asp	Asp	Tyr	Asp	Asp	Pro	His
530						535					540				
Ser	Asn	Ala	Met	Lys	Asn	Tyr	Lys	Glu	Val	Pro	Asp	Trp	Trp	Tyr	Phe
545					550					555					560
Ala	Ile	Leu	Ile	Gly	Ser	Leu	Val	Val	Gly	Ile	Ala	Val	Val	Glu	His
				565					570					575	
Tyr	Pro	Thr	Asn	Thr	Pro	Val	Trp	Gly	Leu	Phe	Val	Cys	Leu	Gly	Phe
			580					585					590		
Asn	Phe	Val	Phe	Leu	Ile	Pro	Thr	Thr	Ile	Leu	Gln	Ala	Thr	Thr	Gly
		595					600					605			
Tyr	Ser	Phe	Gly	Leu	Asn	Leu	Leu	Ile	Glu	Met	Val	Met	Gly	Tyr	Ala
	610				615						620				
Leu	Pro	Gly	Asn	Pro	Ile	Ala	Ile	Met	Ile	Leu	Lys	Ala	Phe	Gly	Tyr
625					630					635					640
Asn	Ile	Asp	Gly	Gln	Ala	Asp	Asn	Tyr	Val	Ser	Asn	Leu	Lys	Ile	Ala
				645					650					655	
His	Tyr	Cys	Lys	Ile	Pro	Pro	Met	Ala	Leu	Phe	Arg	Gly	Gln	Cys	Val
			660					665					670		
Ile	Val	Phe	Ile	Gln	Ile	Phe	Val	Asn	Leu	Gly	Val	Leu	Asn	Trp	Gln
		675					680					685			
Ile	Ser	Asn	Ile	Lys	Asp	Phe	Cys	Thr	Pro	His	Gln	Asn	Ala	Lys	Phe
	690					695					700				
Thr	Cys	Pro	Asp	Ala	Val	Thr	Tyr	Tyr	Asn	Ala	Ser	Val	Val	Trp	Gly
705					710					715					720
Ala	Ile	Gly	Pro	Lys	Arg	Ile	Phe	Asn	Tyr	Ile	Tyr	Pro	Ile	Phe	Lys
				725				730						735	
Trp	Cys	Trp	Leu	Ile	Gly	Ala	Cys	Ile	Gly	Ile	Phe	Phe	Gly	Val	Trp
			740				745						750		
Lys	Arg	Trp	Gly	Lys	Phe	Tyr	Pro	Arg	Tyr	Phe	Asp	Pro	Met	Leu	Phe
		755					760					765			
Val	Gly	Gly	Met	Leu	Asn	Met	Ser	Pro	Pro	Tyr	Asn	Leu	Met	Tyr	Tyr
	770				775						780				
Thr	Ser	Gly	Met	Ile	Val	Ser	Tyr	Ile	Ser	Gln	Tyr	Tyr	Met	Lys	Arg
785					790					795					800
His	His	Leu	Asn	Leu	Trp	Glu	Lys	Tyr	Asn	Tyr	Val	Leu	Ser	Ala	Gly
				805					810					815	
Phe	Ser	Thr	Gly	Leu	Val	Leu	Ser	Ala	Ile	Ile	Ile	Phe	Phe	Ala	Val
			820					825					830		
Gln	Tyr	Lys	Asp	Thr	Ala	Phe	Asn	Trp	Trp	Gly	Asn	Thr	Val	Pro	Tyr
		835					840					845			

Ala Gly Ala Asp Gly Val Gly Tyr Pro Leu Lys Asn Ile Thr Asp Thr
850 855 860

Ala Asn Gly Tyr Phe Gly Tyr Ala Pro Gly His Tyr Pro
865 870 875

<210> 10

<211> 851

<212> PRT

<213> Schizosaccharomyces pombe

<400> 10

Met Thr Ala Arg Asn Ser Ala Ser Ile Pro Thr Ser Ile Arg Lys Thr
1 5 10 15

Ser Glu Asn Glu Val Ser Gly Asp Glu Thr Pro Ala Gly Val Gly Asn
20 25 30

Leu Ser Thr Lys Thr Ala Ser Lys Thr Ser Leu Thr Phe Arg Gln Ser
35 40 45

Ser Ser Asp Glu Ser Thr Ser Ser Tyr Ser Gly Asn His His Asn Ile
50 55 60

Asn Ile Gln His His Pro Asn Arg Pro Phe Arg Thr Asn Ser Ser Ser
65 70 75 80

Phe Ser Pro Asn Asp Tyr Ser Ile Ser Glu Ser Pro Ser Lys Ser Lys
85 90 95

Lys Asp Gly Val His Val Ser Ala Val Gln Leu Asp Asn Glu Thr Asp
100 105 110

Ser Glu Val Glu Ser Glu Val Glu Glu Leu Glu Arg Glu Leu Glu Ala
115 120 125

Ile Glu Asp Ser Val Tyr Pro Glu Val Arg Ala Ala Val Asn Pro Thr
130 135 140

Asp Asp Val Asn Leu Pro Val Asn Thr Trp Arg Thr Trp Val Leu Thr
145 150 155 160

Thr Ile Phe Val Ile Val Phe Ala Ala Val Asn Gln Phe Phe Ser Leu
165 170 175

Arg Tyr Pro Ala Leu Ser Ile Ser Phe Ile Val Ala Gln Leu Ile Leu
180 185 190

Phe Pro Leu Gly Lys Leu Leu Asn Leu Leu Pro Asn Trp Lys Ile Gly
195 200 205

Tyr Gly Arg Phe Ser Phe Tyr Leu Asn Ser Ser Pro Phe Asn Val Lys
210 215 220

Glu His Ala Ala Ile Thr Ile Ala Val Ser Leu Thr Ser Ser Thr Ala
225 230 235 240

Tyr Ala Thr Asn Ile Leu Ser Ala Gln Thr Ser Phe Tyr Lys Gln Asn
245 250 255

Leu Ser Trp Gly Tyr Lys Ile Leu Ile Val Leu Thr Ser Gln Met Leu
 260 265 270
 Gly Tyr Gly Phe Ala Gly Leu Thr Arg Arg Trp Ile Val Tyr Pro Ala
 275 280 285
 Ala Met Ile Trp Pro Gln Thr Leu Val Ser Thr Val Leu Phe Arg Thr
 290 295 300
 Leu His Gly Asn Ser Gly Asn Asp Ile Gly Val Leu Lys Asn Asn Arg
 305 310 315 320
 Ile Ser Ala Asn Gly Trp Thr Ile Ser Arg Tyr Arg Phe Phe Ala Tyr
 325 330 335
 Val Met Ile Gly Ser Phe Val Phe Tyr Trp Phe Pro Gly Phe Ile Phe
 340 345 350
 Lys Gly Leu Ser Tyr Phe Thr Val Leu Cys Trp Ile Trp Pro Lys Asn
 355 360 365
 Arg Val Val Asn Gln Leu Phe Gly Tyr Asn Ser Gly Leu Gly Ile Leu
 370 375 380
 Pro Leu Thr Phe Asp Trp Gln Gln Val Val Tyr Asn Ser Asn Pro Leu
 385 390 395 400
 Ala Ser Pro Trp Trp Val Ile Cys Asn Thr Phe Gly Ser Val Val Leu
 405 410 415
 Ile Phe Trp Ile Val Val Pro Ile Leu Tyr Tyr Lys Gly Val Trp Phe
 420 425 430
 Ser Asn Tyr Leu Pro Met Leu Ser Ser Ser Thr Phe Asp His Thr Gly
 435 440 445
 Val Ser Tyr Asn Ser Ser Arg Val Leu Asn Ser Asp Tyr Ser Phe Asn
 450 455 460
 His Thr Lys Tyr Glu Ser Tyr Ser Pro Leu Tyr Met Pro Met Ser Tyr
 465 470 475 480
 Ser Met Ser Thr Ala Leu Asn Phe Ala Ala Val Thr Ala Ile Phe Thr
 485 490 495
 His Cys Ala Leu Tyr Asn Gly Lys Asp Ile Trp Gln Arg Leu Trp Lys
 500 505 510
 Glu Ser Gly Lys Asp Glu Cys Ile His Arg Lys Leu Met Arg Asn Tyr
 515 520 525
 Lys Glu Ala Pro Gln Trp Trp Tyr Ala Thr Leu Phe Ile Val Val Phe
 530 535 540
 Gly Leu Thr Ile Phe Thr Val Arg Tyr Tyr Asp Thr Gln Cys Pro Val
 545 550 555 560
 Trp Ala Leu Ile Val Ala Leu Leu Ile Phe Ile Val Asn Phe Ile Pro
 565 570 575
 Gln Gly Val Leu Glu Gly Ile Thr Asn Gln His Val Gly Leu Asn Ile

580					585					590					
Ile	Thr	Glu	Leu	Ile	Gly	Gly	Tyr	Ile	Leu	Pro	Gly	Lys	Pro	Leu	Ala
		595					600					605			
Asn	Leu	Met	Ile	Lys	Leu	Tyr	Gly	Phe	Ile	Pro	Met	Arg	Gln	Gly	Leu
		610				615					620				
Glu	Phe	Ser	Arg	Asp	Leu	Lys	Leu	Ala	Gln	Tyr	Met	Lys	Ile	Pro	Pro
		625				630					635				640
Arg	Ile	Leu	Phe	Phe	Val	Gln	Leu	Phe	Ala	Thr	Ile	Leu	Gly	Gly	Ile
				645					650					655	
Thr	Gln	Val	Ala	Val	Gln	Glu	Trp	Met	Asn	Tyr	His	Ile	Pro	Gly	Ile
			660					665					670		
Cys	Thr	Thr	Ser	Gln	Ser	Asn	Gly	Phe	Thr	Cys	Pro	Asn	Gly	Arg	Ser
			675				680					685			
Ile	Tyr	Asn	Ala	Ser	Leu	Ile	Trp	Gly	Ala	Ile	Gly	Pro	Ala	Lys	Met
		690				695					700				
Phe	Ser	Lys	Gly	Lys	Pro	Tyr	Tyr	Pro	Leu	Ile	Phe	Phe	Phe	Leu	Ile
		705				710					715				720
Gly	Ala	Val	Ala	Pro	Phe	Ile	Thr	Trp	Gly	Leu	Arg	Lys	Arg	Phe	Pro
				725					730					735	
Lys	Ser	Trp	Ile	Gly	Lys	Leu	Asn	Ala	Pro	Val	Leu	Phe	Thr	Gly	Pro
			740					745					750		
Gly	Asn	Ile	Pro	Pro	Ala	Thr	Gly	Ile	Asn	Tyr	Ser	Ser	Trp	Ala	Ile
		755					760					765			
Val	Gly	Phe	Ile	Phe	Asn	Tyr	Val	Ile	Arg	Lys	Arg	Ala	Ile	His	Trp
		770				775					780				
Trp	Arg	Lys	Tyr	Asn	Tyr	Val	Leu	Ala	Ala	Ala	Met	Asp	Ser	Gly	Val
		785				790					795				800
Ala	Val	Ala	Gly	Val	Val	Ile	Phe	Leu	Cys	Val	Ser	Tyr	Pro	Gly	Gly
				805					810					815	
Lys	Ile	Thr	Trp	Trp	Gly	Asn	Thr	Val	Tyr	Thr	Lys	Thr	Tyr	Asp	Trp
			820					825					830		
Lys	Ser	Val	Pro	Tyr	Arg	Ser	Leu	Gly	Pro	Asn	Glu	Thr	Phe	Gly	Tyr
		835					840					845			
Thr	Asn	Trp													
		850													

<210> 11

<211> 791

<212> PRT

<213> Schizosaccharomyces pombe

<400> 11

Met Lys Thr Pro Lys Phe Ile Thr Tyr Val Thr Arg Gly Phe Lys Gly

1	5	10	15
Leu Glu Ser Lys Ser Val Glu Asn Asn Lys Asp His Ile Val Glu Asn	20	25	30
Ser Ser Pro Ile Ala Ser Lys Phe His Glu Phe Asp Glu Gln Lys Lys	35	40	45
Ser Phe Glu Ile Ile Asn Tyr Ala Gly His Glu Lys Phe Val Asp Asp	50	55	60
Ile Thr Glu Arg Glu Ser Ser Val Pro Gly Asn Ala Val Tyr Asp Ile	65	70	75
Thr Val Arg Asp Ile Asp Ala Ile Val Pro Val Thr Asp Asp Val Asp	85	90	95
Ile Pro Ala Ser Thr Phe Arg Met Trp Ile Leu Ala Phe Gly Leu Ala	100	105	110
Thr Val Ile Ala Gly Val Asp Ala Phe Phe Leu Met Arg Tyr Pro Ser	115	120	125
Val Ser Ile Ala Ala Ile Val Ala Leu Leu Val Ala Tyr Pro Leu Gly	130	135	140
Gln Leu Trp Tyr Tyr Ile Ile Pro Gln Trp Glu Ile Lys Leu Pro Arg	145	150	155
Gly Ile Arg Val Ser Leu Asn Pro Gly Arg Phe Asn Arg Lys Glu His	165	170	175
Ala Cys Leu Tyr Ile Phe Val Asn Ile Cys Val Ser Ala Lys Leu Val	180	185	190
Asn Thr Leu Ile Ile Glu Gln Ile Lys Phe Phe Gly Val Asn Ile Gly	195	200	205
Ile Gly Arg Ala Ile Leu Phe Asn Leu Cys Ser Tyr Leu Ser Ser Phe	210	215	220
Gly Trp Ser Gly Leu Ala Leu Pro Ile Leu Val Tyr Pro Pro Thr Leu	225	230	235
Ile Trp Pro Ser Val Leu Ser Ser Cys Ala Leu Phe Lys Ile Phe His	245	250	255
Asp Asn Asp Asn Thr Lys Ala Cys Asn Trp Thr Ile Ser Arg Leu Arg	260	265	270
Tyr Phe Phe Ile Val Phe Val Ala Ser Phe Ile Trp Tyr Trp Phe Pro	275	280	285
Asp Leu Ile Phe Pro Ala Leu Ser Ser Leu Gly Ala Trp Ile Ser Trp	290	295	300
Cys Lys Pro Ser Ser Ala Val Leu Ser Gln Ile Phe Gly Val Lys Thr	305	310	315
Gly Leu Gly Leu Phe Pro Leu Thr Leu Asp Trp Ala Gln Ile Ser Ser	325	330	335

Leu	Ser	Asn	Pro	Leu	Ile	Thr	Pro	Trp	Trp	Ala	Thr	Cys	Cys	Ile	Phe
			340					345					350		
Thr	Ser	Phe	Val	Phe	Trp	Ile	Trp	Ile	Val	Leu	Pro	Gly	Leu	Tyr	Tyr
		355					360					365			
Gln	Asn	Tyr	Trp	Gln	Val	Ala	His	Phe	Pro	Ile	Met	Thr	Asn	Ser	Ile
	370					375					380				
Tyr	Thr	Val	Ser	Gly	Lys	Ser	Tyr	Asp	Ala	Gln	Lys	Val	Val	Asp	Ser
385					390					395					400
Lys	Trp	Glu	Leu	Val	Thr	Gln	Lys	Tyr	Gln	Glu	Tyr	Ser	Pro	Val	Met
				405					410					415	
Leu	Pro	Ile	Ala	Phe	Ile	Ile	Asn	Ile	Ala	Leu	Ser	Leu	Gly	Ala	Phe
			420					425					430		
Ser	Ser	Met	Met	Ile	Ser	Phe	Phe	Leu	Arg	Phe	Pro	Thr	Asp	Val	Ile
		435					440					445			
Gln	Pro	Ile	Cys	His	Val	Phe	Lys	Tyr	Ser	Asp	Ile	His	Thr	Lys	Leu
	450					455					460				
Leu	Lys	Lys	Tyr	Lys	Arg	Val	His	Trp	Gly	Phe	Tyr	Leu	Ala	Ser	Ile
465					470					475					480
Ile	Val	Ser	Leu	Gly	Leu	Gly	Phe	Ala	Phe	Thr	Glu	Gly	Trp	His	Asp
				485					490					495	
Ile	Gln	Ile	Arg	Ser	Tyr	Gly	Phe	Val	Val	Ser	Met	Val	Ile	Gly	Ala
			500					505					510		
Ala	Leu	Tyr	Ile	Pro	Leu	Ser	Leu	Ile	Glu	Ser	Arg	Ser	Ser	Phe	Thr
		515					520					525			
Ile	Ser	Met	Gln	Ala	Phe	Phe	Glu	Ile	Val	Ala	Ala	Phe	Trp	Phe	Asn
	530					535					540				
Gly	Gln	Pro	Met	Ala	Leu	Leu	Tyr	Phe	Tyr	Ser	Phe	Gly	Phe	Gly	Thr
545					550					555					560
Leu	Gln	His	Ala	Met	His	Met	Thr	Gln	Ser	Ala	Lys	Ile	Gly	His	Tyr
				565					570					575	
Met	Lys	Val	Pro	Pro	Arg	Leu	Val	Ala	Ala	Leu	Leu	Phe	Thr	Ser	Gly
			580					585					590		
Ile	Trp	Ser	Ser	Leu	Val	Asn	Ser	Ala	Val	Thr	Gly	Trp	Ile	Met	Tyr
		595					600					605			
His	Val	Arg	Asp	Val	Cys	Thr	Ser	Asn	Ala	Glu	Asn	Asn	Met	Thr	Cys
	610					615					620				
Arg	Ser	Pro	Lys	Thr	Gln	Phe	Asn	Ser	His	Leu	Ile	Trp	Gly	Leu	Val
625					630					635					640
Gly	Asn	His	Ile	Phe	Ser	Ser	Asp	Gly	Arg	Tyr	Ser	Phe	Val	Met	Trp
				645					650					655	

Phe Phe Leu Val Gly Ala Val Val Ser Val Val Val Tyr Leu Leu Gln
 660 665 670
 Ile Ser Phe Pro Lys Ser Ser Trp Lys His Val Asn Pro Ala Leu Leu
 675 680 685
 Leu Gly Gly Ala Ala Gln Ile Pro Ser Val Thr Gly Ile Asn Tyr Ser
 690 695 700
 Thr Trp Ala Ala Val Ala Phe Cys Phe Asn Tyr Leu Ile Arg Arg Gly
 705 710 715 720
 Tyr Tyr Ser Trp Trp Lys Lys Tyr Asn Leu Ile Thr Ala Ala Ala Met
 725 730 735
 Asp Cys Gly Val Ala Ile Ala Gly Leu Phe Ile Tyr Phe Cys Val Val
 740 745 750
 Tyr Thr Gly Gly Ser Ser Asn Phe Ser Trp Trp Gly Thr Thr Val Ser
 755 760 765
 Ser Ala Gly Cys Asp Lys Lys Gly Cys Ala His Leu Ser Val Ser Asp
 770 775 780
 Ile Ser Lys Pro Ser Gly Trp
 785 790

<210> 12
 <211> 776
 <212> PRT
 <213> Schizosaccharomyces pombe

<400> 12
 Met Ile Gly Ser Ile Asn Glu Ser Pro Ile Glu Glu His Met Asn Asp
 1 5 10 15
 Ser Pro Ser Thr Lys Glu Lys Ala Asp Ser Val Asp Ile Ser Asp Tyr
 20 25 30
 Ile Val Ser His Ser Asp Asp Ser Leu Ser Lys Asp Ile Lys Lys Asp
 35 40 45
 Thr Lys Ser Phe Leu Asp Val Glu His Gly Glu Ile Ser Thr Val Asp
 50 55 60
 Glu Phe Glu Glu Asp Ser Pro Tyr Pro Glu Val Arg Ala Ala Val Pro
 65 70 75 80
 Pro Thr Asp Asp Pro Ser Met Pro Cys Asn Thr Ile Arg Met Trp Thr
 85 90 95
 Ile Gly Leu Ile Tyr Ser Thr Val Gly Ala Ala Val Asn Met Phe Phe
 100 105 110
 Ser Leu Arg Asn Pro Thr Val Thr Leu Ser Val Leu Ile Ser Glu Leu
 115 120 125
 Leu Ala Tyr Pro Ala Leu Gln Ile Trp Asp Leu Ile Phe Pro Asp Arg
 130 135 140

Glu Phe Arg Ile Gly Arg Leu Lys Phe Asn Phe Lys Pro Gly Pro Phe
 145 150 155 160
 Asn Val Lys Glu His Ala Leu Ile Val Val Met Ser Ser Val Ser Phe
 165 170 175
 Gly Asn Ala Tyr Ser Thr Asp Ile Ile Leu Ala Gln Arg Val His Tyr
 180 185 190
 Lys Gln Arg Phe Gly Phe Gly Tyr Glu Ile Cys Leu Thr Leu Ala Thr
 195 200 205
 Gln Leu Ile Gly Tyr Gly Leu Ala Gly Leu Ser Arg Arg Leu Leu Val
 210 215 220
 Arg Pro Ala Ser Met Leu Trp Pro Val Asn Leu Val Gln Cys Thr Leu
 225 230 235 240
 Ile Lys Thr Leu His Arg Lys Asp Leu Arg Asn Ala Val Ala Asn Gly
 245 250 255
 Trp Arg Ile Ser Pro Phe Arg Phe Phe Leu Tyr Val Phe Ile Ala Ser
 260 265 270
 Phe Ile Trp Asn Trp Phe Pro Ser Tyr Ile Phe Gln Ala Leu Ser Leu
 275 280 285
 Phe Ala Trp Val Thr Trp Ile Arg Pro Asn Ser Pro Thr Val Asn Gln
 290 295 300
 Ile Phe Gly Glu Ser Thr Gly Ile Ser Ile Leu Pro Met Thr Phe Asp
 305 310 315 320
 Trp Asn Gln Ile Ser Ala Tyr Ile Leu Ser Pro Leu Met Ala Pro Ala
 325 330 335
 Asp Ala Leu Met Asn Ile Leu Leu Gly Val Ile Leu Phe Phe Trp Ile
 340 345 350
 Val Thr Pro Ala Leu Asn Phe Thr Asn Thr Trp Tyr Gly Asp Tyr Leu
 355 360 365
 Pro Ile Ser Ser Ser Gly Ile Ile Asp His Phe Gly Asn Ser Tyr Asn
 370 375 380
 Val Thr Arg Ile Leu Thr Lys Asp Ala Thr Phe Asp Leu Asp Ala Tyr
 385 390 395 400
 Gln Asn Tyr Ser Pro Ile Phe Met Ser Thr Thr Tyr Ala Leu Ala Phe
 405 410 415
 Gly Leu Ser Phe Ala Ser Ile Thr Ser Val Ile Phe His Val Ile Leu
 420 425 430
 Tyr His Gly Lys Glu Ile Tyr Asp Arg Leu Arg Asp Pro Pro Ala Pro
 435 440 445
 Asp Ile His Glu Lys Leu Met Lys Ala Tyr Asp Glu Val Pro Phe Tyr
 450 455 460
 Trp Tyr Leu Ser Val Phe Leu Ala Phe Phe Gly Met Met Met Gly Thr

465		470		475		480
Ile Tyr Gly Trp	Lys Thr Glu Thr Pro Trp Trp Val Ile Ile Val Gly					
	485			490		495
Val Ile Phe Ser	Ala Val Trp Phe Ile Pro Ile Gly Ile Val Gln Ala					
	500		505			510
Ile Thr Asn Ile	Gln Leu Gly Leu Asn Val Phe Thr Glu Phe Ile Val					
	515		520			525
Gly Tyr Met Tyr	Pro Gly Arg Pro Leu Ala Met Met Ile Phe Lys Thr					
	530		535			540
Val Gly Tyr Ile	Thr Met Thr Gln Gly Leu Ala Phe Ala Ala Asp Leu					
	545		550			555
Lys Glu Gly His	Tyr Met Lys Leu Pro Pro Arg Ile Met Phe Tyr Thr					
	565			570		575
Gln Met Ile Ala	Thr Ile Trp Ser Cys Phe Val Gln Ile Gly Val Leu					
	580		585			590
Asp Trp Ala Leu	Gly Asn Ile Asp Asn Val Cys Gln Ala Asp Gln Pro					
	595		600			605
Asp Asn Tyr Thr	Cys Pro Asn Ala Thr Val Phe Phe Asn Ser Ser Val					
	610		615			620
Ile Trp Gly Val	Ile Gly Pro Lys Arg Met Phe Ser Gly Lys Asn Thr					
	625		630			635
Tyr Thr Gly Leu	Gln Tyr Phe Trp Leu Ala Gly Val Leu Gly Thr Ile					
	645		650			655
Leu Phe Trp Ala	Leu Trp Lys Lys Trp Pro Gln Lys Trp Trp Gly Gln					
	660		665			670
Leu Asn Gly Pro	Leu Ile Phe Gly Gly Thr Gly Tyr Ile Pro Pro Ala					
	675		680			685
Thr Pro Val Asn	Tyr Leu Ala Trp Ser Gly Ile Gly Leu Phe Phe Asn					
	690		695			700
Tyr Tyr Leu Lys	Lys Ile Phe Ala Asp Trp Trp Gln Lys Tyr Asn Phe					
	705		710			715
Thr Leu Ser Ala	Leu Asp Thr Gly Thr Gln Leu Ser Val Ile Ile Leu					
	725		730			735
Phe Phe Cys Leu	Gln Leu Pro Met Val Asn Phe Pro Asp Trp Trp Gly					
	740		745			750
Asn Asp Gly Ala	Phe Asn Thr Leu Asp Ala Thr Gly Ala Ala Val Arg					
	755		760			765
Lys Leu Val Asn	Glu Ser Ala Arg					
	770		775			

<211> 776
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: Isp4

<400> 13

Met	Ile	Gly	Ser	Ile	Asn	Glu	Ser	Pro	Ile	Glu	Glu	His	Met	Asn	Asp	
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Ser	Pro	Ser	Thr	Lys	Glu	Lys	Ala	Asp	Ser	Val	Asp	Ile	Ser	Asp	Tyr	
			20					25					30			
Ile	Val	Ser	His	Ser	Asp	Asp	Ser	Leu	Ser	Lys	Asp	Ile	Lys	Lys	Asp	
		35					40					45				
Thr	Lys	Ser	Phe	Leu	Asp	Val	Glu	His	Gly	Glu	Ile	Ser	Thr	Val	Asp	
	50					55					60					
Glu	Phe	Glu	Glu	Asp	Ser	Pro	Tyr	Pro	Glu	Val	Arg	Ala	Ala	Val	Pro	
65					70					75					80	
Pro	Thr	Asp	Asp	Pro	Ser	Met	Pro	Cys	Asn	Thr	Ile	Arg	Met	Trp	Thr	
				85					90					95		
Ile	Gly	Leu	Ile	Tyr	Ser	Thr	Val	Gly	Ala	Ala	Val	Asn	Met	Phe	Phe	
		100						105					110			
Ser	Leu	Arg	Asn	Pro	Thr	Val	Thr	Leu	Ser	Val	Leu	Ile	Ser	Glu	Leu	
		115					120					125				
Leu	Ala	Tyr	Pro	Ala	Leu	Gln	Ile	Trp	Asp	Leu	Ile	Phe	Pro	Asp	Arg	
	130					135					140					
Glu	Phe	Arg	Ile	Gly	Arg	Leu	Lys	Phe	Asn	Phe	Lys	Pro	Gly	Pro	Phe	
145					150					155					160	
Asn	Val	Lys	Glu	His	Ala	Leu	Ile	Val	Val	Met	Ser	Ser	Val	Ser	Phe	
				165					170					175		
Gly	Asn	Ala	Tyr	Ser	Thr	Asp	Ile	Ile	Leu	Ala	Gln	Arg	Val	His	Tyr	
			180					185					190			
Lys	Gln	Arg	Phe	Gly	Phe	Gly	Tyr	Glu	Ile	Cys	Leu	Thr	Leu	Ala	Thr	
		195					200					205				
Gln	Leu	Ile	Gly	Tyr	Gly	Leu	Ala	Gly	Leu	Ser	Arg	Arg	Leu	Leu	Val	
	210					215					220					
Arg	Pro	Ala	Ser	Met	Leu	Trp	Pro	Val	Asn	Leu	Val	Gln	Cys	Thr	Leu	
225					230					235					240	
Ile	Lys	Thr	Leu	His	Arg	Lys	Asp	Leu	Arg	Asn	Ala	Val	Ala	Asn	Gly	
				245					250					255		
Trp	Arg	Ile	Ser	Pro	Phe	Arg	Phe	Phe	Leu	Tyr	Val	Phe	Ile	Ala	Ser	
			260					265					270			
Phe	Ile	Trp	Asn	Trp	Phe	Pro	Ser	Tyr	Ile	Phe	Gln	Ala	Leu	Ser	Leu	
		275					280					285				

Phe 290	Ala	Trp	Val	Thr	Trp	Ile 295	Arg	Pro	Asn	Ser	Pro 300	Thr	Val	Asn	Gln
Ile 305	Phe	Gly	Glu	Ser	Thr 310	Gly	Ile	Ser	Ile	Leu 315	Pro	Met	Thr	Phe	Asp 320
Trp	Asn	Gln	Ile	Ser 325	Ala	Tyr	Ile	Leu	Ser 330	Pro	Leu	Met	Ala	Pro 335	Ala
Asp	Ala	Leu	Met 340	Asn	Ile	Leu	Leu	Gly 345	Val	Ile	Leu	Phe	Phe 350	Trp	Ile
Val	Thr	Pro 355	Ala	Leu	Asn	Phe	Thr 360	Asn	Thr	Trp	Tyr	Gly 365	Asp	Tyr	Leu
Pro	Ile 370	Ser	Ser	Ser	Gly	Ile 375	Ile	Asp	His	Phe	Gly 380	Asn	Ser	Tyr	Asn
Val 385	Thr	Arg	Ile	Leu	Thr 390	Lys	Asp	Ala	Thr	Phe 395	Asp	Leu	Asp	Ala	Tyr 400
Gln	Asn	Tyr	Ser	Pro 405	Ile	Phe	Met	Ser	Thr 410	Thr	Tyr	Ala	Leu	Ala 415	Phe
Gly	Leu	Ser	Phe 420	Ala	Ser	Ile	Thr	Ser 425	Val	Ile	Phe	His	Val 430	Ile	Leu
Tyr	His	Gly 435	Lys	Glu	Ile	Tyr	Asp 440	Arg	Leu	Arg	Asp	Pro 445	Pro	Ala	Pro
Asp	Ile 450	His	Glu	Lys	Leu	Met 455	Lys	Ala	Tyr	Asp	Glu 460	Val	Pro	Phe	Tyr
Trp 465	Tyr	Leu	Ser	Val	Phe 470	Leu	Ala	Phe	Phe	Gly 475	Met	Met	Met	Gly	Thr 480
Ile	Tyr	Gly	Trp	Lys 485	Thr	Glu	Thr	Pro	Trp 490	Trp	Val	Ile	Ile	Val 495	Gly
Val	Ile	Phe	Ser 500	Ala	Val	Trp	Phe	Ile 505	Pro	Ile	Gly	Ile	Val 510	Gln	Ala
Ile	Thr	Asn 515	Ile	Gln	Leu	Gly	Leu 520	Asn	Val	Phe	Thr	Glu 525	Phe	Ile	Val
Gly	Tyr 530	Met	Tyr	Pro	Gly	Arg 535	Pro	Leu	Ala	Met	Met 540	Ile	Phe	Lys	Thr
Val 545	Gly	Tyr	Ile	Thr	Met 550	Thr	Gln	Gly	Leu	Ala 555	Phe	Ala	Ala	Asp	Leu 560
Lys	Phe	Gly	His	Tyr 565	Met	Lys	Leu	Pro	Pro 570	Arg	Ile	Met	Phe	Tyr 575	Thr
Gln	Met	Ile	Ala 580	Thr	Ile	Trp	Ser	Cys 585	Phe	Val	Gln	Ile	Gly 590	Val	Leu
Asp	Trp	Ala 595	Leu	Gly	Asn	Ile	Asp 600	Asn	Val	Cys	Gln	Ala 605	Asp	Gln	Pro

Asp	Asn	Tyr	Thr	Cys	Pro	Asn	Ala	Thr	Val	Phe	Phe	Asn	Ser	Ser	Val
610						615					620				
Ile	Trp	Gly	Val	Ile	Gly	Pro	Lys	Arg	Met	Phe	Ser	Gly	Lys	Asn	Thr
625					630					635					640
Tyr	Thr	Gly	Leu	Gln	Tyr	Phe	Trp	Leu	Ala	Gly	Val	Leu	Gly	Thr	Ile
				645					650					655	
Leu	Phe	Trp	Ala	Leu	Trp	Lys	Lys	Trp	Pro	Gln	Lys	Trp	Trp	Gly	Gln
			660					665					670		
Leu	Asn	Gly	Pro	Leu	Ile	Phe	Gly	Gly	Thr	Gly	Tyr	Ile	Pro	Pro	Ala
		675					680					685			
Thr	Pro	Val	Asn	Tyr	Leu	Ala	Trp	Ser	Gly	Ile	Gly	Leu	Phe	Phe	Asn
	690					695					700				
Tyr	Tyr	Leu	Lys	Lys	Ile	Phe	Ala	Asp	Trp	Trp	Gln	Lys	Tyr	Asn	Phe
705					710					715					720
Thr	Leu	Ser	Ala	Leu	Asp	Thr	Gly	Thr	Gln	Leu	Ser	Val	Ile	Ile	Leu
				725					730					735	
Phe	Phe	Cys	Leu	Gln	Leu	Pro	Met	Val	Asn	Phe	Pro	Asp	Trp	Trp	Gly
			740					745					750		
Asn	Asp	Gly	Ala	Phe	Asn	Thr	Leu	Asp	Ala	Thr	Gly	Ala	Ala	Val	Arg
		755					760					765			
Lys	Leu	Val	Asn	Glu	Ser	Ala	Arg								
	770					775									

<210> 14

<211> 783

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: Opt1

<400> 14

Met	Asp	Lys	Ile	Arg	Ala	Val	Ile	Ser	Gly	Gly	Glu	Lys	Pro	Pro	Val
1				5					10					15	
Asp	Thr	Asp	Asn	Asp	His	Asn	Thr	Asp	Phe	Glu	Ala	Asp	Arg	Lys	Met
			20					25					30		
Pro	Asp	Leu	Asp	Ile	Val	Val	Ser	Lys	Ser	Gln	Glu	Phe	Asp	Pro	Val
		35					40					45			
Thr	Ser	His	Leu	Val	Asn	Asp	Ile	Met	Glu	Asp	Glu	Tyr	Ala	Ala	Val
	50					55					60				
His	Val	Glu	Asp	Asp	Ser	Pro	Tyr	Pro	Glu	Val	Arg	Ala	Ala	Val	Pro
65					70					75					80
Ser	Thr	Asp	Asp	Pro	Thr	Leu	Pro	Gln	Asn	Thr	Ile	Arg	Ala	Trp	Val
				85					90					95	

Ile	Gly	Leu	Ile	Leu	Thr	Thr	Val	Gly	Cys	Gly	Met	Asn	Met	Leu	Phe	
			100					105					110			
Ser	Phe	His	Ser	Pro	Ser	Phe	Ala	Ile	Thr	Thr	Phe	Val	Thr	Ser	Ile	
		115					120					125				
Leu	Ala	Trp	Pro	Ile	Gly	Asn	Phe	Trp	Ala	Trp	Ile	Val	Pro	Asp	Trp	
	130					135					140					
Lys	Ile	Phe	Gly	Ala	Ser	Leu	Asn	Pro	Gly	Pro	Phe	Asn	Val	Lys	Glu	
145					150					155					160	
His	Thr	Ile	Ile	Thr	Ile	Met	Ala	Asn	Val	Ser	Phe	Gly	Thr	Gly	Ala	
				165					170					175		
Ala	Tyr	Ala	Thr	Asp	Ile	Leu	Leu	Ala	Gln	Asn	Met	Phe	Tyr	Lys	Ser	
			180					185					190			
Asn	Phe	Gly	Trp	Gly	Tyr	Asn	Leu	Leu	Leu	Ile	Trp	Ser	Thr	Gln	Cys	
		195					200					205				
Ile	Gly	Phe	Ala	Phe	Gly	Gly	Val	Met	Arg	Arg	Phe	Val	Val	Asp	Ser	
	210					215					220					
Pro	Gly	Ala	Ile	Trp	Pro	Leu	Asn	Leu	Val	Thr	Ala	Thr	Phe	Leu	Thr	
225					230					235					240	
Asn	Met	His	Ile	Asn	Glu	Asn	His	Thr	Ala	Asn	Gly	Trp	Lys	Ile	Ser	
				245					250					255		
Arg	Leu	Ala	Phe	Phe	Val	Ile	Val	Phe	Val	Ala	Ser	Phe	Val	Trp	Tyr	
			260					265					270			
Trp	Phe	Pro	Gly	Tyr	Ile	Phe	Gln	Ala	Leu	Ser	Tyr	Phe	Ser	Trp	Ile	
		275					280					285				
Thr	Trp	Ile	Lys	Pro	Asn	Asn	Val	Ile	Ile	Asn	Gln	Val	Phe	Gly	Ser	
	290					295					300					
Ser	Ser	Gly	Leu	Gly	Met	Ile	Pro	Asn	Asn	Ile	Ala	Leu	Asp	Trp	Asn	
305					310					315					320	
Gln	Ile	Ala	Gly	Tyr	Ile	Gly	Ser	Pro	Leu	Ile	Pro	Pro	Ala	Ser	Val	
			325						330					335		
Ile	Ala	Thr	Ile	Phe	Gly	Ser	Ile	Val	Leu	Ile	Phe	Trp	Ile	Val	Val	
			340					345					350			
Pro	Ala	Ile	His	Tyr	Ser	Asn	Thr	Trp	Tyr	Ser	Gln	Tyr	Leu	Pro	Ile	
		355					360					365				
Ser	Ser	Thr	Gly	Ser	Phe	Asp	Arg	Phe	Gln	Gln	Thr	Tyr	Asn	Val	Ser	
	370					375					380					
Lys	Ile	Ile	Asp	His	Lys	Thr	Leu	Ser	Phe	Asn	Glu	Ala	Glu	Tyr	Lys	
385					390					395					400	
Lys	Tyr	Ser	Pro	Leu	Phe	Leu	Ser	Thr	Thr	Phe	Ala	Ile	Ser	Tyr	Gly	
				405					410					415		
Leu	Ser	Phe	Ala	Ser	Ile	Leu	Ala	Thr	Ile	Thr	His	Thr	Ile	Cys	Phe	

420										425					430						
His	Gly	Arg	Asp	Leu	Ile	Ala	Ser	Leu	Lys	Ala	Lys	Glu	Lys	Pro	Asp						
		435					440					445									
Val	His	Asn	Arg	Leu	Met	Lys	Ala	Tyr	Lys	Pro	Val	Pro	Glu	Trp	Trp						
	450					455					460										
Tyr	Leu	Val	Val	Phe	Leu	Val	Phe	Phe	Gly	Met	Ser	Ile	Ala	Thr	Val						
465					470					475					480						
Arg	Ala	Trp	Pro	Thr	Glu	Met	Pro	Val	Trp	Gly	Leu	Val	Phe	Ala	Leu						
				485					490					495							
Ile	Ile	Ala	Ile	Ile	Phe	Leu	Leu	Pro	Val	Ala	Ile	Ile	Tyr	Ala	Lys						
			500					505					510								
Thr	Asn	Ile	Ala	Val	Gly	Leu	Asn	Val	Val	Thr	Glu	Phe	Ile	Val	Gly						
		515					520					525									
Tyr	Val	Leu	Gly	Gly	Arg	Pro	Leu	Cys	Met	Met	Leu	Phe	Lys	Thr	Phe						
	530					535					540										
Gly	Tyr	Ile	Thr	Asn	Asn	Gln	Ala	Val	Thr	Phe	Val	Gln	Asp	Met	Lys						
545					550					555					560						
Leu	Gly	His	Tyr	Met	Lys	Ile	Asp	Pro	Arg	Thr	Leu	Phe	Trp	Ala	Gln						
				565					570					575							
Phe	Ala	Ala	Thr	Ile	Trp	Gly	Ser	Leu	Val	Gln	Ile	Ala	Val	Leu	Glu						
			580					585					590								
Trp	Ala	Val	Gly	Ala	Ile	Asp	Asn	Leu	Cys	Ala	Ala	Asp	Gln	Lys	Asn						
		595					600						605								
His	Tyr	Thr	Cys	Pro	Asn	Gly	Lys	Val	Phe	Phe	Asn	Ala	Ser	Ile	Ile						
	610					615					620										
Trp	Gly	Val	Ile	Gly	Pro	Gln	Arg	Gln	Phe	Ser	His	Gly	Gln	Ile	Tyr						
625					630					635					640						
Tyr	Gly	Leu	Leu	Phe	Phe	Phe	Ile	Ile	Gly	Ala	Val	Thr	Pro	Val	Ile						
				645					650					655							
Asn	Trp	Leu	Ile	Leu	Lys	Lys	Trp	Pro	Asn	Ser	Pro	Val	Lys	Tyr	Leu						
		660						665					670								
His	Trp	Pro	Val	Phe	Phe	Ser	Gly	Thr	Gly	Tyr	Ile	Pro	Pro	Ala	Thr						
		675					680					685									
Pro	Tyr	Asn	Tyr	Thr	Ser	Tyr	Cys	Ala	Val	Gly	Leu	Phe	Phe	Gly	Trp						
	690					695					700										
Trp	Ile	Lys	Lys	Lys	Trp	Phe	His	Trp	Trp	Ser	Lys	Tyr	Asn	Tyr	Ser						
705					710					715					720						
Leu	Ser	Ala	Gly	Leu	Asp	Ile	Gly	Leu	Ala	Trp	Cys	Ser	Leu	Ile	Ile						
				725					730					735							
Phe	Leu	Cys	Leu	Ser	Leu	Thr	Asn	Thr	Asp	Phe	Pro	Ser	Trp	Trp	Gly						
			740					745					750								

Asn Asp Val Ile Asn Thr Thr Leu Asp Thr Gln Val Val Thr Asn Ile
755 760 765

Arg His Ile Leu Lys Glu Gly Glu Ala Phe Gly Pro Ser Ser Trp
770 775 780

<210> 15

<211> 798

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: YJL212C

<400> 15

Met Ser Thr Ile Tyr Arg Glu Ser Asp Ser Leu Glu Ser Glu Pro Ser
1 5 10 15

Pro Thr Pro Thr Thr Ile Pro Ile Gln Ile Asn Met Glu Glu Glu Lys
20 25 30

Lys Asp Ala Phe Val Lys Asn Ile Asp Glu Asp Val Asn Asn Leu Thr
35 40 45

Ala Thr Thr Asp Glu Glu Asp Arg Asp Pro Glu Ser Gln Lys Phe Asp
50 55 60

Arg His Ser Ile Gly Glu Glu Gly Leu Val Trp Lys Gly Asp Pro Thr
65 70 75 80

Tyr Leu Pro Asn Ser Pro Tyr Pro Glu Val Arg Ser Ala Val Ser Ile
85 90 95

Glu Asp Asp Pro Thr Ile Arg Leu Asn His Trp Arg Thr Trp Phe Leu
100 105 110

Thr Thr Val Phe Val Val Val Phe Ala Gly Val Asn Gln Phe Phe Ser
115 120 125

Leu Arg Tyr Pro Ser Leu Glu Ile Asn Phe Leu Val Ala Gln Val Val
130 135 140

Cys Tyr Pro Ile Gly Arg Ile Ala Leu Leu Pro Asp Trp Lys Cys Ser
145 150 155 160

Lys Val Pro Phe Phe Asp Leu Asn Pro Gly Pro Phe Thr Lys Lys Glu
165 170 175

His Ala Val Val Thr Ile Ala Val Ala Leu Thr Ser Ser Thr Ala Tyr
180 185 190

Ala Met Tyr Ile Leu Asn Ala Gln Gly Ser Phe Tyr Asn Met Lys Leu
195 200 205

Asn Val Gly Tyr Gln Phe Leu Leu Val Trp Thr Ser Gln Met Ile Gly
210 215 220

Tyr Gly Ala Ala Gly Leu Thr Arg Arg Trp Val Val Asn Pro Ala Ser
225 230 235 240

Ser Ile Trp Pro Gln Thr Leu Ile Ser Val Ser Leu Phe Asp Ser Leu
 245 250 255
 His Ser Arg Lys Val Glu Lys Thr Val Ala Asn Gly Trp Thr Met Pro
 260 265 270
 Arg Tyr Arg Phe Phe Leu Ile Val Leu Ile Gly Ser Phe Ile Trp Tyr
 275 280 285
 Trp Val Pro Gly Phe Leu Phe Thr Gly Leu Ser Tyr Phe Asn Val Ile
 290 295 300
 Leu Trp Gly Ser Lys Thr Arg His Asn Phe Ile Ala Asn Thr Ile Phe
 305 310 315 320
 Gly Thr Gln Ser Gly Leu Gly Ala Leu Pro Ile Thr Phe Asp Tyr Thr
 325 330 335
 Gln Val Ser Gln Ala Met Ser Gly Ser Val Phe Ala Thr Pro Phe Tyr
 340 345 350
 Val Ser Ala Asn Thr Tyr Ala Ser Val Leu Ile Phe Phe Val Ile Val
 355 360 365
 Leu Pro Cys Leu Tyr Phe Thr Asn Thr Trp Tyr Ala Lys Tyr Met Pro
 370 375 380
 Val Ile Ser Gly Ser Thr Tyr Asp Asn Thr Gln Asn Lys Tyr Asn Val
 385 390 395 400
 Thr Lys Ile Leu Asn Glu Asp Tyr Ser Ile Asn Leu Glu Lys Tyr Lys
 405 410 415
 Glu Tyr Ser Pro Val Phe Val Pro Phe Ser Tyr Leu Leu Ser Tyr Ala
 420 425 430
 Leu Asn Phe Ala Ala Val Ile Ala Val Phe Val His Cys Ile Leu Tyr
 435 440 445
 His Gly Lys Asp Ile Val Ala Lys Phe Lys Asp Arg Lys Asn Gly Gly
 450 455 460
 Thr Asp Ile His Met Arg Ile Tyr Ser Lys Asn Tyr Lys Asp Cys Pro
 465 470 475 480
 Asp Trp Trp Tyr Leu Leu Leu Gln Ile Val Met Ile Gly Leu Gly Phe
 485 490 495
 Val Ala Val Cys Cys Phe Asp Thr Lys Phe Pro Ala Trp Ala Phe Val
 500 505 510
 Ile Ala Ile Leu Ile Ser Leu Val Asn Phe Ile Pro Gln Gly Ile Leu
 515 520 525
 Glu Ala Met Thr Asn Gln His Val Gly Leu Asn Ile Ile Thr Glu Leu
 530 535 540
 Ile Cys Gly Tyr Met Leu Pro Leu Arg Pro Met Ala Asn Leu Leu Phe
 545 550 555 560

Lys Leu Tyr Gly Phe Ile Val Met Arg Gln Gly Leu Asn Leu Ser Arg
 565 570 575
 Asp Leu Lys Leu Ala Met Tyr Met Lys Val Ser Pro Arg Leu Ile Phe
 580 585 590
 Ala Val Gln Ile Tyr Ala Thr Ile Ile Ser Gly Met Val Asn Val Gly
 595 600 605
 Val Gln Glu Trp Met Met His Asn Ile Asp Gly Leu Cys Thr Thr Asp
 610 615 620
 Gln Pro Asn Gly Phe Thr Cys Ala Asn Gly Arg Thr Val Phe Asn Ala
 625 630 635 640
 Ser Ile Ile Trp Ser Leu Pro Lys Tyr Leu Phe Ser Ser Gly Arg Ile
 645 650 655
 Tyr Asn Pro Leu Met Trp Phe Phe Leu Ile Gly Leu Leu Phe Pro Leu
 660 665 670
 Ala Val Tyr Ala Val Gln Trp Lys Phe Pro Lys Phe Lys Phe Ala Lys
 675 680 685
 His Ile His Thr Pro Val Phe Phe Thr Gly Pro Gly Asn Ile Pro Pro
 690 695 700
 Ser Thr Pro Tyr Asn Tyr Ser Leu Phe Phe Ala Met Ser Phe Cys Leu
 705 710 715 720
 Asn Leu Ile Arg Lys Arg Trp Arg Ala Trp Phe Asn Lys Tyr Asn Phe
 725 730 735
 Val Met Gly Ala Gly Val Glu Ala Gly Val Ala Ile Ser Val Val Ile
 740 745 750
 Ile Phe Leu Cys Val Gln Tyr Pro Gly Gly Lys Leu Ser Trp Trp Gly
 755 760 765
 Asn Asn Val Trp Lys Arg Thr Tyr Asp Asn Asp Tyr Lys Lys Phe Tyr
 770 775 780
 Thr Leu Lys Lys Gly Glu Thr Phe Gly Tyr Asp Lys Trp Trp
 785 790 795

<210> 16

<211> 877

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: YPR194C

<400> 16

Met Ser Glu Thr Tyr Lys Asp Lys Val Ile Ile Asp Glu Lys Val Ser
 1 5 10 15

Thr Lys Gly Thr Val Asp Tyr Ala Glu Gly Ala Glu Tyr Ser Glu Arg
 20 25 30

Leu Ser Asn His Ser Ser Asp Phe Ser Gln Trp Tyr Thr Asp Glu Gln
 35 40 45
 Ile Leu His Phe Met Lys Lys Leu Gly Tyr Glu Asn Arg Thr Leu Val
 50 55 60
 Asp Ile Pro Glu Asp Val Ala Tyr Ile Leu Lys Lys Met Pro Glu Leu
 65 70 75 80
 Thr Leu Glu Asp Ser Phe Lys Ile Leu Lys Asp Ser Ile Ile Tyr Phe
 85 90 95
 Lys Asp Asp Glu Asn Ile Pro His Asp Gln Tyr Glu Glu Trp Lys Arg
 100 105 110
 Leu Val Asp Leu Glu Asp Leu Asp Ser Lys Glu Gly Ile Asp Glu Tyr
 115 120 125
 Asp Ser Phe Asp Ile Arg Ala Phe Ala Ser Ala Ile Lys Phe His Ser
 130 135 140
 Pro Tyr Gln Glu Val Arg Ala Val Val Asp Pro Glu Asp Asp Pro Thr
 145 150 155 160
 Ile Pro Val Glu Thr Phe Arg Ala Tyr Phe Leu Ala Ile Ile Trp Ser
 165 170 175
 Val Ile Gly Ser Gly Phe Asn Glu Phe Phe Ser His Arg Val Val Ser
 180 185 190
 Ile Ser Leu Asn Thr Pro Ile Ile Gln Met Phe Leu Tyr Ile Cys Gly
 195 200 205
 Lys Ala Trp Ala Lys Thr Ile Pro Cys Trp Thr Ile Thr Ile Arg Gly
 210 215 220
 Arg Lys Tyr Gly Ile Asn Ile Asp Lys Pro Trp Thr Gln Lys Glu Gln
 225 230 235 240
 Met Phe Ser Thr Leu Leu Tyr Ala Ile Cys Gln Gly Ala Phe Tyr Thr
 245 250 255
 His Tyr Asn Ile Leu Thr Gln Lys Leu Phe Tyr His Ser Ala Phe Ser
 260 265 270
 Phe Gly Tyr Gln Phe Leu Leu Ser Leu Ser Val Gln Phe Ile Gly Phe
 275 280 285
 Gly Phe Ala Gly Ile Leu Arg Lys Phe Val Val Tyr Pro Ala Arg Ala
 290 295 300
 Leu Trp Pro Thr Val Met Pro Thr Ile Ala Ile Asn Lys Ala Leu Leu
 305 310 315 320
 Gly Lys Glu Lys His Glu Ser Gly Met Ser Arg Tyr Lys Phe Phe Phe
 325 330 335
 Leu Thr Phe Phe Ile Met Phe Ile Tyr Asn Trp Phe Pro Thr Tyr Ile
 340 345 350
 Ile Asn Ile Leu Asn Thr Phe Asn Trp Met Thr Trp Ile Lys Pro Ser

355					360					365					
Asn	Ile	Asn	Leu	Ala	Asn	Ile	Thr	Gly	Gly	Val	Thr	Gly	Leu	Gly	Ile
370					375					380					
Asn	Pro	Ile	Ser	Ser	Phe	Asp	Trp	Asn	Val	Ile	Ser	Phe	Asn	Ser	Pro
385					390					395					400
Leu	Val	Tyr	Pro	Phe	Trp	Ser	Tyr	Leu	Thr	Gln	Tyr	Leu	Gly	Cys	Ile
				405					410					415	
Leu	Ala	Ala	Leu	Ile	Val	Ile	Ala	Val	Tyr	Tyr	Ser	Asn	Tyr	Met	Ser
			420					425					430		
Cys	Gln	Tyr	Leu	Pro	Ile	Phe	Thr	Asn	Ser	Leu	Tyr	Thr	Asn	Thr	Gly
		435					440					445			
His	Ser	Phe	Lys	Val	Thr	Glu	Val	Leu	Asp	Ser	Asp	Asn	Lys	Leu	Asp
	450					455					460				
Val	Lys	Lys	Tyr	Gln	Ser	Tyr	Ser	Pro	Pro	Tyr	Tyr	Ser	Ala	Gly	Asn
465					470					475					480
Leu	Val	Ser	Tyr	Gly	Ala	Phe	Ile	Cys	Ala	Tyr	Pro	Leu	Met	Ile	Thr
				485					490					495	
Trp	Ser	Phe	Ile	Val	His	Ser	Lys	Leu	Leu	Phe	Asn	Ala	Phe	Lys	Asp
			500					505					510		
Trp	Ala	Leu	Asn	Leu	Trp	Ala	Met	Arg	Lys	Leu	Lys	Ser	Trp	Val	Thr
		515					520					525			
Met	Phe	Lys	Ser	Asp	Tyr	Arg	Ala	Leu	Asp	Asp	Tyr	Asp	Asp	Pro	His
	530					535					540				
Ser	Asn	Ala	Met	Lys	Asn	Tyr	Lys	Glu	Val	Pro	Asp	Trp	Trp	Tyr	Phe
545					550					555					560
Ala	Ile	Leu	Ile	Gly	Ser	Leu	Val	Val	Gly	Ile	Ala	Val	Val	Glu	His
				565					570					575	
Tyr	Pro	Thr	Asn	Thr	Pro	Val	Trp	Gly	Leu	Phe	Val	Cys	Leu	Gly	Phe
			580					585					590		
Asn	Phe	Val	Phe	Leu	Ile	Pro	Thr	Thr	Ile	Leu	Gln	Ala	Thr	Thr	Gly
		595					600					605			
Tyr	Ser	Phe	Gly	Leu	Asn	Leu	Leu	Ile	Glu	Met	Val	Met	Gly	Tyr	Ala
	610					615					620				
Leu	Pro	Gly	Asn	Pro	Ile	Ala	Ile	Met	Ile	Leu	Lys	Ala	Phe	Gly	Tyr
625					630					635					640
Asn	Ile	Asp	Gly	Gln	Ala	Asp	Asn	Tyr	Val	Ser	Asn	Leu	Lys	Ile	Ala
				645					650					655	
His	Tyr	Cys	Lys	Ile	Pro	Pro	Met	Ala	Leu	Phe	Arg	Gly	Gln	Cys	Val
			660					665					670		
Ile	Val	Phe	Ile	Gln	Ile	Phe	Val	Asn	Leu	Gly	Val	Leu	Asn	Trp	Gln
		675					680					685			

Ile Ser Asn Ile Lys Asp Phe Cys Thr Pro His Gln Asn Ala Lys Phe
 690 695 700
 Thr Cys Pro Asp Ala Val Thr Tyr Tyr Asn Ala Ser Val Val Trp Gly
 705 710 715 720
 Ala Ile Gly Pro Lys Arg Ile Phe Asn Tyr Ile Tyr Pro Ile Phe Lys
 725 730 735
 Trp Cys Trp Leu Ile Gly Ala Cys Ile Gly Ile Phe Phe Gly Val Trp
 740 745 750
 Lys Arg Trp Gly Lys Phe Tyr Pro Arg Tyr Phe Asp Pro Met Leu Phe
 755 760 765
 Val Gly Gly Met Leu Asn Met Ser Pro Pro Tyr Asn Leu Met Tyr Tyr
 770 775 780
 Thr Ser Gly Met Ile Val Ser Tyr Ile Ser Gln Tyr Tyr Met Lys Arg
 785 790 795 800
 His His Leu Asn Leu Trp Glu Lys Tyr Asn Tyr Val Leu Ser Ala Gly
 805 810 815
 Phe Ser Thr Gly Leu Val Leu Ser Ala Ile Ile Ile Phe Phe Ala Val
 820 825 830
 Gln Tyr Lys Asp Thr Ala Phe Asn Trp Trp Gly Asn Thr Val Pro Tyr
 835 840 845
 Ala Gly Ala Asp Gly Val Gly Tyr Pro Leu Lys Asn Ile Thr Asp Thr
 850 855 860
 Ala Asn Gly Tyr Phe Gly Tyr Ala Pro Gly His Tyr Pro
 865 870 875

<210> 17

<211> 2634

<212> DNA

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: OPT

<400> 17

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cgcact	cctt	atgatatt	cc	ggaagac	gtt	gcgtata	tcc	tcaaaaa	aat	gcctga	aattg	240
acacttg	agg	attcctt	caa	aatact	aaaa	gactct	atca	tctattt	caa	ggatga	tgag	300
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<210> 18

<211> 5

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: Leu Enkphalin

<400> 18

Tyr Gly Gly Phe Met

1 5

<210> 19

<211> 5

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: Met Enkephalin

<400> 19

Tyr Gly Gly Phe Leu

1 5

<210> 20

<211> 4

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: uptake peptide

<400> 20

Gly Gly Phe Leu

1

<210> 21

<211> 4

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: uptake peptide

<400> 21

Lys Leu Gly Leu

1

<210> 22

<211> 4

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: Tyr-Mif-1

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Tyr Pro Leu Gly

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<210> 23

<211> 5

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: uptake peptide

<400> 23

Tyr Gly Gly Phe Leu

1

5

<210> 24

<211> 7

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: DPDPE

<220>

<221> MOD_RES

<222> (3)

<223> Pen

<220>

<221> MOD_RES

<222> (7)

<223> Pen

<400> 24

Tyr Asp Xaa Gly Phe Asp Xaa

1

5

<210> 25

<211> 7

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: DADLE

<400> 25

Tyr Asp Ala Gly Phe Asp Leu

1

5

<210> 26

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: motif

<220>

<223> Xaa represents a variable amino acid

<400> 26

Ser Pro Tyr Xaa Glu Val Arg Xaa Xaa Val Xaa Xaa Xaa Asp Asp Pro

1

5

10

15